USDA Foreign Agricultural Service
GAIN Report
Global Agricultural Information Network

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Voluntary _ Public

Date: 4/21/2011
GAIN Report Number: JA1012

Japan

Post: Tokyo

April 6 Update - Japan Food and Agriculture

Report Categories:
Agricultural Situation

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Report Highlights:
Immediately following the **Great East Japan Earthquake** on March 11, 2011, FAS/Japan prepared a series of reports on Japan's rapidly evolving food and agricultural situation. These reports were designed to disseminate vast amounts of information to a broad audience of policy makers and private sector actors as quickly as possible. Topics covered in these reports include; food safety, soil toxicity, port damages, disaster assistance, feed supply infrastructure, commodity prices, retail trends, consumer psychology, and many other food and agricultural topics. As the post-quake series of reports were prepared quickly, often from Japanese translations, some liberties may have been taken with grammar and writing style.

TODAY'S OVERVIEW

Last week Japanese consumers endured food safety scares related to leafy greens and vegetables, and then water, and then beef. This week the safety of the country's seafood is on the minds of the Japanese. With the dumping of radioactively contaminated water from the troubled nuclear power plant in Fukishima into the ocean, it was only a matter of time before the government reported findings of radioactivity in fish. On April 5, 2011, the Ministry of Health Labor and Welfare announced that 4,080 becquerels/kg of iodine-131 and 526 Bq/kg of cesium had been detected in sand lance fish caught in Kita Ibaraki City, Ibaraki. Even though Ibaraki fish was immediately banned from commerce, consumer demand for all seafood has plummeted over the past two days.

Thus far a total of 18,800 trawlers have been found destroyed or damaged in eight prefectures. Some 260 fishing seaports in Iwate, Miyagi, and Fukushima reportedly suffered "devastating" damage, while about 350 fisheries processing factories in Miyagi were totally destroyed. Given the sheer enormity of this disaster, reserves for the government's fishing boat insurance system will reportedly run short. The total amount of insurance payments is estimated to reach 100 billion yen.

Beyond fisheries, MAFF reportedly found that damage to farmland and agricultural facilities amounted to some 450 billion yen ($5.35 billion USD). That estimate is likely to increase significantly in the coming months. Miyagi was hit the hardest, though an overall 2% decline in the rice paddy acreage is not going to put a dent in Japan's total rice supply.

How the government will manage compensating all of the many thousands of farmers and fishermen that have lost their livelihoods from this triple-disaster remains to be seen. What the government will never be able to compensate for is the loss of faith that the Japanese had, as recently as four weeks ago, in the safety of domestically produced food.

BACKGROUND

A massive 9.0 magnitude earthquake and subsequent tsunami hit Japan's north east pacific coastal region on March 11, 2011. The catastrophe devastated cities, towns, and villages of the prefectures located along the coast line. The most affected prefectures are Iwate, Miyagi, Fukushima, and Ibaragi. Deaths: 12,468; Missing persons: 15,091; Wounded: 2,885

PORTS

Ports are recovering throughout Japan, but it remains unclear as to when PANAMAX size vessels can be accepted. According to industry observers, even if physical situation will be improved, there are some concerns that vessel owners might try to skip ports around Fukushima.

INTERNATIONAL TRADE

At least 25 foreign economies have restricted imports of farm and other food products from Japan in response to the nuclear crisis. The restrictions on food imports from Japan have been expanding, while the government has asked foreign countries to comply with the World Trade Organization rules that

prohibit member countries from imposing import restrictions that have no scientific ground. The UAE has imposed the most sweeping import ban among the 25 foreign economies, covering all fresh food imports from Japan.
On Tuesday European Commission Chairman Barroso announced that the EU will implement more stringent radiation-related regulations on Japanese food imports. In response to this change in regulations, PM Kan asked the EU to be rational in dealing with food imports from Japan. The European Union has asked Japan to certify food products as free of radioactive contamination. As Tokyo has failed to meet the request, Japanese exporters have effectively been unable to ship food products.

OPERATION TOMADACHI

To date the U.S. has mobilized 18,000 troops, 19 ships, including the aircraft carrier USS Ronald Reagan, and 140 aircraft. A 144 member USAID relief team, 39 experts on nuclear power generation, and a taskforce of 450 radiation hazard control specialists will also be sent to Japan. Sendai Airport is reopened thanks to the U.S. military, and the first plane that airlifted food, water, and other relief supplies to the airport was a U.S. C-130 cargo plane. The U.S. military will continue to provide assistance to Japan's reconstruction efforts even in the case of a government shutdown.

GRAINS AND OILSEEDS

The feed industry recovers day by day, but is still able to only formulate very rough feed, such as 75% corn, 22% SBM and 3% others for pigs. Producers (pig and poultry) remain uncertain as to the nutrient counts in the feed, and how long they will have to wait before feed is normalized. Poor quality feed effects growth, and thus profit margins. Premix companies have been greatly affected, and are not back to full production as yet.

Compound Feed to Tohoku

- Since the earthquake on March11, 54,400 mt of compound feed has arrived by ground transportation to Tohoku area. 44,750 mt from the west and 9,650 mt from Hokkaido.
- 36,400 mt (or 43,800?) arrived by domestic vessels to ports along the Sea of Japan (opposite side of Japan archipelago to the Pacific), among which 29,400 mt was from the West and 14,400 mt was from Hokkaido.
- Livestock in Tohoku area has been supplied with about half feed of normal time. Animals can survive enough with half amount of feed supply although they can not grow much. And they can grow for shipping once feed supply will be normalized.
- Among 11 feed mills in Kashima, some are in full operation being back to the production capacity before the earthquake. As a whole the covers 60- 70% of normal capacity due to shortage in water and electricity. Mills of Marubeni Nisshin and Japan Feed are in full operation, utilizing recently restored steam supply in production of pellets with expander. Higashinihon Kumiai Feed is also expected full operation including pellets, next week.
- As a whole, all mills will be back to full operation in April or beginning of May. (Whole compound feed production in Kashima is 330,000 mt per month before the earthquake)

WOOD PRODUCTS

Minister Ohata from the Ministry of Land, Infrastructure, Transport and Tourism stated the GOJ will do its utmost best to procure necessary temporary housing construction materials for the victims of the March 11 disaster. Although the ministry has called on housing builders to construct a total of 60,000 temporary housing units by August, there is concern over a possible shortage of construction materials due to the damage incurred to suppliers. Minister Ohata said that Japan will call on the United States and European nations to help provide construction materials if necessary.

Weyerhaeuser NR Company (Corporate Headquarters, Federal Way, Washington) has started providing wood products including SPF dimension lumber to Japan for construction of temporary emergency housing. Weyerhauser is currently considering shipping Douglas Fir logs for wood pickets (dia. 4 inch) and has received inquiries from a several housing companies engaged construction of temporary housing. President/CEO Mr. Daniel Fulto has stated that he would like to support Japan as much as possible in recognition of the long-term partnership between Weyerhauser and Japan. The company started selling lumber to Japan in 1923 following the Great Kanto earthquake that devastated Tokyo and Yokohama.

POULTRY, MEAT, DAIRY AND LIVESTOCK

At this point the feeling is that overall the livestock population in the disaster zone was not significantly impacted, with the exception of some cattle lost in the tsunami and some chicken from post-earthquake conditions. The livestock located within 20 km radius of the Fukushima nuclear power plant is considered to be a total loss. Animals within 20-30 km radius (which is not a significant numbers) are reportedly not totally lost, but cannot be shipped or commercialized in any way due to GOJ restrictions.

In total there will be no significant reduction in feed demand in Tohoku. MAFF believes key element for quick recovery is survival of animals for cattle and swine, and availability of facility/equipments (cage, automatic feeder, etc) for chickens. Many of the supply constraints (water, electricity, gas, and fuel and transport) noted previously that have been hampering production, storage and transportation of products have started to diminish since the last week of March. The situation is expected to make further progress during the month of April. At the same time, the supply of formula mixed feeds in the affected areas (Iwate, Fukushima, Miyagi, Ibaragi) are expected to recover to nearly pre- earthquake levels in the month of April. The demand for feed in affected areas is being met by supplies diverted from Hokkaido, Kyushu and Central Japan. Thus, the only remaining constraint appears to be "rolling blackouts". This will likely be a greater handicap for the livestock sector in Tohoku and Kanto region in returning normal operations.

Poultry (Broiler and Egg):

The table below shows poultry population before the earthquake and tsunami in the suffered areas. This disaster caused estimated losses of 5 million laying hens and 4 million broiler birds.

Prefecture	Layer	Broiler

Aomori	4.91	6.11
Iwate	3.72	15.41
Miyagi	3.93	1.75
Akita	1.75	
Yamagata	0.68	
Fukushima	4.16	1.11
Ibaraki	10.79	1.23
Total	**29.94**	**25.61**
Japan Total	139.03	171.4
Share	21.5%	14.9%

As major constraints on production inputs (feed, electricity, water, and fuel) for broiler and egg production in the country have started to ease, the prospect for second quarter (2011)) broiler and egg supplies from affected Tohoku region seems decent. While facilities/factories of one or two of the larger scale broiler integrators located in the Tohoku region's coastal zone were incapacitated; the latest information post has received from MAFF suggests that the majority of other integrators/operators located inland are largely unaffected, but resumption of their operations had been constrained by a lack of fuel, water, and electricity and so on. Furthermore, broiler outputs in Miyazaki prefecture, the nation's 2nd highest ranked broiler producing prefecture, which was hit by an avian influenza (A.I.) outbreak early this year, are expected to recover in the second half of this year. On March 29 the GOJ had lifted all movement and shipping restrictions previously imposed in Miyazaki prefecture due to A.I. (Total 13 cases). The above situation should improve the nation's domestic broiler supply prospects during the second half of 2011. Until then, imported raw broiler meat and prepared products for retail and those locally utilized for the prepared food business should do well by covering a temporary shortage in domestic supply during the first half of this year.

The wholesale price of eggs has been soaring in Tokyo market (from 200 yen per kilo to 260 yen per kilo as of April 5). However, demand from the Tokyo metropolitan area is being met by supplies from the Western/Central region. Increased egg prices will reflect higher transport costs, but the supply is not as tight as it was two weeks ago.

Despite very positive news regarding the overall supply situation, it should be noted that KFJ Japan has begun curtailing restaurant hours in response to a drop-off in poultry shipments from the disaster-stricken Tohoku region. Business hours for most of the company's 1,140-odd Kentucky Fried Chicken restaurants are now from 11 a.m. to 8 p.m. Many locations used to be open from 10 a.m. to 10 p.m., a difference of three hours.

Milk and Dairy Products:

The supply of drinking milk/yogurt has been scarce in Tokyo and the surrounding prefectures as milk factory operations in Tohoku and Kanto regions were negatively affected by the earthquake for the first three weeks. Entering April, the situation for the drinking milk supply appears to have been making progress. Major retail chains have started to carry drinking milk packs on their shelves. The situation is expected to improve further this month and beyond since the supply of paper packs for drinking milk is expected to return to normal by the time operation is restored in the damaged factories. Also the supply

short fall for fluid milk due to a suspension of shipment imposed on in Ibaragi and Fukushima prefectures from radiation contamination is said to be partially met by supplies from Hokkaido and the Western part of Japan. However, the scarcity of yogurt is expected to continue for some time since the production process has been affected by the implementation of rolling blackouts. Uncertainties over butter demand are developing as consumers have been refraining from consuming confectionaries. Cheeses (expensive items) will also likely be affected. There is no report of powdered milk being in short supply at present.

Pork

Similar to broiler meat, the prospects for the second quarter hog supply from the Tohoku region looks decent, though it is still uncertain how this earthquake impacted sow operations in the affected prefectures of the Tohoku region (No supporting data is available). This may disrupt hog output in the second half this year. FAS/Tokyo understands that hog output from Miyazaki prefecture, the nation's 2nd highest ranked hog producing prefecture, has yet to recover from last year's massive Food and Mouth Disease (FMD) outbreaks. Thus, how many sows in Miyazaki have been reintroduced into the production cycle is uncertain since no supporting data is available.

It is too early to make an informed statement about the impact of these disasters on the overall net impact on domestic consumption, supply, and imports.

Beef

At least for the time being, market demand for domestic beef (particularly for Wagyu) will likely stay weak, as evidenced by wholesale prices, which have been trending downward since the earthquake. The market should stay favorable for inexpensive and affordably priced imported beef. Japan's beef producers will be affected by some of the same factors described in the above sections.

SEAFOOD

The MAFF Fishery Agency held a public meeting on March 29 to emphasize to explain that fish and seafood remain safe to eat. Despite this reassurance, the market is reacting to news that most of the fishery cooperatives in Ibaraki Prefecture will suspend all of their fishing following the finding that 526 becquerels/kg of radioactive cesium was present in a young sand lance fish caught off the coast of Kitaibaraki City, Ibaraki.

Earlier this week Japanese government stated its intent of establishing permanent radioactive tolerance levels for seafood. Since there was no previous standard, the levels will be based on standards already in effect for vegetables. There is a great amount of concern that consumers will increasingly avoid purchases of seafood out of fear of radioactive contamination. The fishery community is asking the government to seek ways to address those concerns and provide compensation for the damages incurred. Though damage from the earthquake was concentrated in the Tohoku coastal region, other regions were also affected such as Wakayam, Kochi, and Miyazaki prefecture.

Effect on the Seafood Industry in Tohoku

According to the Fisheries Agency, 30% of Japan's mackerel and 13% of sardines are landed on the devastated ports in Tohoku, and 30% of Japan's oysters are cultured in Iwate and Miyagi where most of the aqua culture facilities are now gone. Supply of scallops is also expected to take a dive because of

damages in Hokkaido and Aomori, producing 90% of Japan's scallops.

Miyagi, Iwate and Aomori Prefecture announced on March 31, 2011, that the tsunami caused by the Great Earthquake of East Japan had resulted in $5.7 billion (476.4 billion yen) in damage to the fishery industry along the Sanriku coast.

Miyagi: All 142 fishing ports suffered devastating damage. Twelve thousands fishing boats (weighing less than 20 metric ton) were either lost or destroyed; more than 90 % of the total number of boats. Oyster farming facilities in the prefecture were completely destroyed with an estimated damage in Miyagi alone of $4.5 billion (374.2 billion yen), which is 79% by value of the total oyster industry in Japan. It is expected that it will take more than 10 years for this industry to completely recover.

Iwate: All 31fishing ports administrated by the prefecture suffered devastating damage. Out of a total of 14,300 fishing boats only 500 remain usable. The prefecture estimates the fishing industry incurred $1.1 billion (98 billion yen) in damages from the disaster.

Aomori: The largest port in the prefecture, Hachonohe, suffered an estimated $50 million (4.2 billion yen) in damages. That estimate is expected to increase as the investigation proceeds. Fukushima prefecture is still unable to provide an estimate of damages at this time due to the current nuclear plant crisis. The tsunami inflicted damages on the fishery industry from Hokkaido and even to Miyazaki and Okinawa.

Total Japanese fishery production decreased 2.9% in 2009. That was an overall decrease of 15.0% during the period between 2001 and 2009; reflecting a downward trend in the fisheries sector in Japan. The number of seawater fisheries and aquaculture operations, for instance, declined by 5.2% in 2008 from 115,000 in 2006. 95% of coastal fishery operations are run by family labor and there are only 71 large-scale fishery management entities in Japan with motor-powered vessels exceeding 1000 tons.

The number of fishery workers is also on the decline. In 2010 there were 202,880 workers, a decline of 8,930 (4.2%) from the previous year. The decline is due mainly to closures and the overall drop in catches. A reduction in business is also associated with vast numbers of aging fishermen retiring. The percentage of male fishery workers 60 or older in 2010 was 50.0%, up 0.3 % over the previous year.

Similarly, fishery cooperatives are also threatened by the recent decline of the fishing industry. Japan had 1267 coastal fisheries cooperatives in 2006. Of these, 67.8 % are now running a deficit and efforts are underway to merge many of them to improve efficiency. The amount of loss carried forward in 2006 was $446 million (37.5 billion yen). MAFF has taken measures to promote mergers and this effort was extended by three years to March 2010 with the aim of merging 250 fishery cooperatives. As of this time more than 1,000 co-ops remain in operation in Japan.

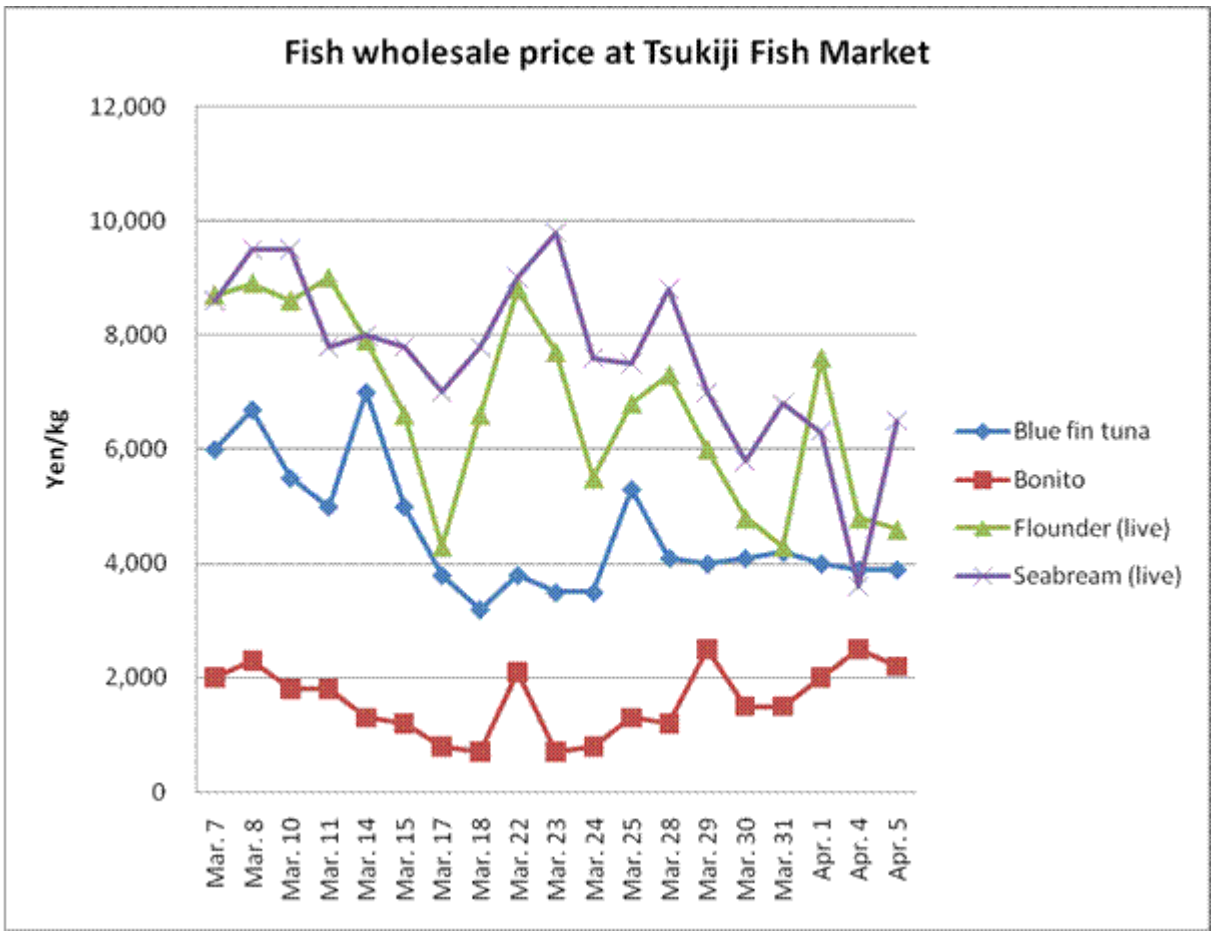
Although Japan has the 6th largest exclusive economic zone in the world, 48 percent of the 90 kinds of

seafood in the waters surrounding Japan are in extremely low supply. In addition to the economic reasons for the decline in vitality of fishing villages there is also an overall social trend of the population moving away from these coastal regions to big cities. Small towns and fishing villages all over Japan are suffering as a result of the outflow of young adults. As a result, typically the only workers remaining are of advanced age. For example, the percentage of male workers over 60-years old in Japan currently amounts to 50.0% of total workers, up 1.0% over previous year. Despite various efforts the downward trend will continue because the average number of new employees is only around 1,200 persons annually of which 20% are newly-graduated and 45% are newcomers from other industries. It is a real challenge to secure a young labor and many fishery processing facilities are hiring "interns" from China as a substitute for Japanese workers.

For all of these reasons, it will be difficult for Japan's fishing industry and communities to recover to the same level as before. However, GOJ may effectively invest in major ports such as Hachinohe, Kesennuma, Kamaishi and Shiogama and try to improve the business structure of the fishing industries and fishery co-ops in the affected area. There will likely be many fishermen deciding to retire or move to what they deem as safer places to work in different industries. The tsunami will have long term effect on the entire fishing industry in the Sanriku region including those that did not incur direct damages from the earthquake and tsunami.

Trading results for March by major seven wholesalers at Tsukji market showed clear impacts caused by March 11 earthquake and Tsunami. Monthly trade volume and value fell 12% compared to the same month of the previous year. Fresh fish and marine processed products shipment from the affected region sharply declined, and rolling blackouts in greater metropolitan Tokyo and surrounding areas hampered appetites of retailers and commercial buyers for seafood. Wholesalers said sales after March 11 dipped by around 30% from a year earlier, citing aftereffects of the quake and tsunami.

By product type, trading of processed products and frozen items advanced. Demands for fresh fish subsided because of self-restraints of commercial uses for banquets. Fresh fish sales decreased amid rolling blackouts. By species, trading of sea-bream and firefly squid plunged. Tuna sales amount plummeted by 90% on the next day of the quake, and down 20% after that.



Fish whole sale price at Tsukiji Fish market

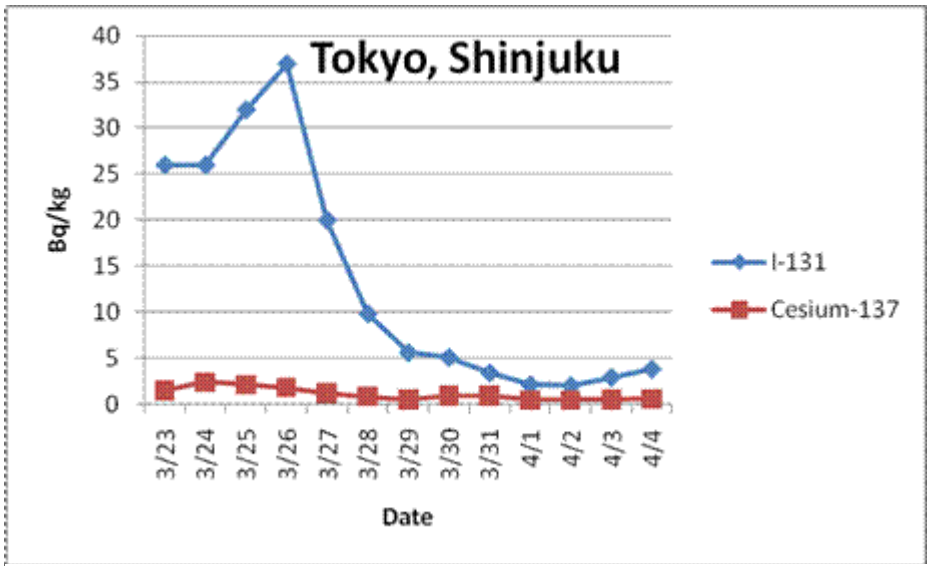
Species	Blue fin tuna	Bonito	Flounder (live)	Sea bream (live)
Mar. 7	6,000	2,000	8,700	8,600
Mar. 8	6,700	2,300	8,900	9,500
Mar. 10	5,500	1,800	8,600	9,500
Average before earthquake	6,067	2,033	8,733	9,200
Mar. 11	5,000	1,800	9,000	7,800
Mar. 14	7,000	1,300	7,900	8,000
Mar. 15	5,000	1,200	6,600	7,800
Mar. 17	3,800	800	4,300	7,000
Mar. 18	3,200	700	6,600	7,800
Mar. 22	3,800	2,100	8,800	9,000
Mar. 23	3,500	700	7,700	9,800
Mar. 24	3,500	800	5,500	7,600
Mar. 25	5,300	1,300	6,800	7,500
Mar. 28	4,100	1,200	7,300	8,800
Mar. 29	4,000	2,500	6,000	7,000

Mar. 30	4,100	1,500	4,800	5,800
Mar. 31	4,200	1,500	4,300	6,800
Apr. 1	4,000	2,000	7,600	6,300
Apr. 4	3,900	2,500	4,800	3,600
Apr. 5	3,900	2,200	4,600	6,500
Average after earthquake	4,220	1,487	6,240	7,287
Ratio after/before	70%	73%	71%	79%

FOOD SAFETY AND SOIL TOXICITY

Tap Water Contamination by Radioactive Materials (As of 9:00 am, April 6, 2011)

Currently tap water use is only restricted in Iidtate Village in Fukushima Prefecture. As long as there are no further releases of radioactive material from the nuclear plants to the atmosphere the level of radioactive material in tap water will remain low, with only minor fluctuations.



(based on data from MEXT, http://www.mext.go.jp/a_menu/saigaijohou/syousai/1303956.htm)

Current restriction of tap water consumption

Prefecture	Area	Infant		General public	
		Starting	Ending	Starting	Ending
Fukushima	Iitate Village	3/21		3/21	4/1
	Date City	3/22	3/26		
		3/27	4/1		
	Kawamata Town	3/22	3/25		
	Koriyama City	3/22	3/25		
	Minami Soma City	3/22	3/30		
	Tamura City	3/22	3/23		

		3/26	3/28		
	Iwaki City	3/23	3/31		
Ibaraki	Tokai Village	3/23	3/26		
	Hitachi Ota City	3/23	3/26		
	Kita Ibaraki City	3/24	3/27		
	Hitachi City	3/24	3/26		
	Kasama City	3/24	3/27		
	Furukawa Cit	3/25	3/25		
	Toride City	3/25	3/26		
Chiba	Nogikuno Haka Filtration Plant, Kuriyama Filtration Plnat	3/23	3/25		
	Kashiwai Filtration Plant	3/26	3/27		
	Kitachiba water system	3/23	3/26		
	Inbagun water system	3/26	3/27		
Tokyo	23 wards and 5 cities	3/23	3/24		
Tochigi	Utsunomiya City	3/25	3/25		
	Nogi Town	3/25	3/26		

Food and Agricultural Products with Radioactive Contamination

On April 4 Chief Cabinet Secretary Edano announced that the GOJ has established a protocol on how agricultural products tested above the radionuclide thresholds will be handled. The protocol includes the following provisions:

1. Once the item tests above the tolerance level, the item produced in a smaller region than the entire prefecture (i.e. village/town/city or group of villages/towns/cities) will be restricted from marketing;
2. The item will be tested once a week, and if it tests clear for three consecutive weeks, the ban will be lifted;
3. This weekly testing will continue until the radiation leak from the Fukushima nuclear plant stops.

Under this new protocol, a marketing restriction was placed on several leafy greens from three cities in Chiba. A complete guide on how radioactively contaminated food is to be handled can be found in the document titled'the Handling of the Provisional Regulatory Limit of Radioactive Materials in Food' (http://www.mhlw.go.jp/stf/houdou/2r98520000017tmu.html), which the GOJ released on April 4, 2011.

On April 5, Ibaraki Prefecture government announced that presence of 4,080 Bq/kg of iodine-131 and 526 Bq/kg of cesium in sand lance fish caught in Kita Ibaraki City. In response to this finding the local government placed a restriction on the distribution of fish. Also, by following the expertise from Nuclear Safety Commission, the government release provisional regulatory limit for radioactive iodine in fish and seafood as 2,000 Bq/kg (same as vegetables, please note the table of regulatory limit

indicated below).

A complete inventory of those products restricted from distribution and consumption is below (as of 9 am, April 6, 2011.

			Distribution Restricted (effective date)							Consumption Restricted (effective date)
			Fukushima	Ibaraki	Tochigi	Gunma	Chiba			Fukushima
			Entire pref	Entire pref	Entire pref	Entire pref	Asahi City	Katori City	Tako Town	Entire pref
Raw milk			3/21	3/23	—	—	—	—	—	—
Vegetables	Non-head vegetables	Spinach	3/21	3/21	3/21	3/21	4/4	4/4	4/4	3/23
		Kakina (a local leaf veg)	3/21	3/21	3/21	3/21	—	—	—	3/23
		Shungiku (leaves of Garland Chrysanthemum)	3/23	—	—	—	4/4	—	—	3/23
		Pak Choi	3/23	—	—	—	4/4	—	—	3/23
		Cos (non-head) lettuce	3/23	—	—	—	4/4	—	—	3/23
		Other non-head leaf vegetables	3/23	—	—	—	—	—	—	3/23
	Head leaf vegetables		3/23	—	—	—	—	—	—	3/23
	Flowerhead brassicas (e.g., broccoli, cauliflower)		3/23	—	—	—	—	—	—	3/23
	Turnip		3/23	—	—	—	—	—	—	—
	Parsley		—	3/23	—	—	4/4	—	—	—
	Celery		—	—	—	—	4/4	—	—	—

A current inventory on the number of tests conducted, and number of above-tolerance findings, is listed in the table below (as of 9 am, April 6, 2011).

`	Item	# of Tests	# Tested Above Tolerance	Items Above Tolerance	#
Fukushima	milk	125	18	raw milk	18
	vegetables	190	53	broccoli	13
				spinach	17
				other veggies (leafy, etc)	20
				cabbage	2
				turnip	1

	meat	18	0		
	egg	17	0		
	fish, seafood	2	0		
	other	21	0		
	subtotal	373	71		
Ibaraki	milk	20	5	raw milk	5
	vegetables	127	35	spinach	27
				parsley	6
				lettuce	1
				other	1
	meat	5	0		
	egg	2			
	fish, seafood	19	1	sand lance fish	1
	other	2	0		
	subtotal	175	41		
Tochigi	milk	5	0		
	vegetables	53	11	spinach	9
				other leafy veggies	2
	subtotal	58	11		
Gunma	milk	4	0		
	vegetables	89	3	spinach	2
				other leafy veggies	1
	subtotal	93	3		
Saitama	milk	4	0		
	vegetables	43	0		
	subtotal	47	0		
Chiba	milk	6	0		
	vegetables	47	11	crown daisy leaf	4
				celery	1
				parsley	2
				spinach	2
				other leafy veggies	2
	fish, seafood	14	0		
	subtotal	67	11		
Tokyo	milk	2	0		
	vegetables	14	1	komatsuna	1

	fish, seafood	2	0	
	subtotal	18	1	
Kanagawa	milk	6	0	
	vegetables	12	0	
	meat	1	0	
	fish, seafood	3	0	
	subtotal	22	0	
Yamagata	milk	1	0	
	vegetables	8	0	
	subtotal	9	0	
Miyagi	milk	2	0	
	vegetables	4		
	subtotal	6	0	
Niigata	milk	4	0	
	vegetables	86	0	
	other	1	0	
	subtotal	91	0	
Nagano	milk	1	0	
	vegetables	5	0	
	subtotal	6	0	
Shizuoka	vegetables	2	0	
	subtotal	2	0	
Ehime	vegetables	2	0	
	subtotal	2	0	
Kyoto	vegetables	2	0	
	subtotal	2		
	TOTAL	971	138	138

Regulatory limits on food and drink ingestion (as of 9:00 am, April 6, 2011).

Nuclide	**Index values relating to ingestion limits in guidelines for coping with disasters at nuclear facilities etc.(Bq/kg)**	
Radioactive iodine	Drinking water	300
(Representative radio-nuclides among mixed radio-	Milk, dairy products*	300

nuclides: I-131)	Vegetables (Except root vegetables and tubers)	2000
	Fish and seafood (provisional)	
Radioactive cesium	Drinking water	200
	Milk, dairy products	
	Vegetables	500
	Grains	
	Meat, eggs, fish, etc.	
Uranium	Infant foods	20
	Drinking water	
	Milk, dairy products	
	Vegetables	100
	Grains	
	Meat, eggs, fish, etc.	
Alpha-emitting nuclides of plutonium and transuranic elements (Total radioactive concentration of Pu-238, Pu-239, Pu-240, Pu-242, Am-241, Cm-242, Cm-243, Cm-244)	Infant foods	1
	Drinking water	
	Milk, dairy products	
	Vegetables	10
	Grains	
	Meat, eggs, fish, etc.	

*) Provide guidance so that materials exceeding 100 Bq/kg are not used in milk supplied for use in powdered baby formula or for direct drinking to baby.

FAS/TOKYO COMMENT - Mid and Long Term Impact of Radioactive Contamination in Food and Water

If radioactive release from the nuclear reactor to the atmosphere is stabilized, the tap water contamination will continue to decrease. Fortunately the geographical characteristics of the Japanese river system might be one of factors that lead to a relatively quick decline in radioactivity in tap water. Due to the steep landscape of the country, the time from rainfall, through the rivers, to the ocean, is relatively short in Japan compared with other countries on larger continents.

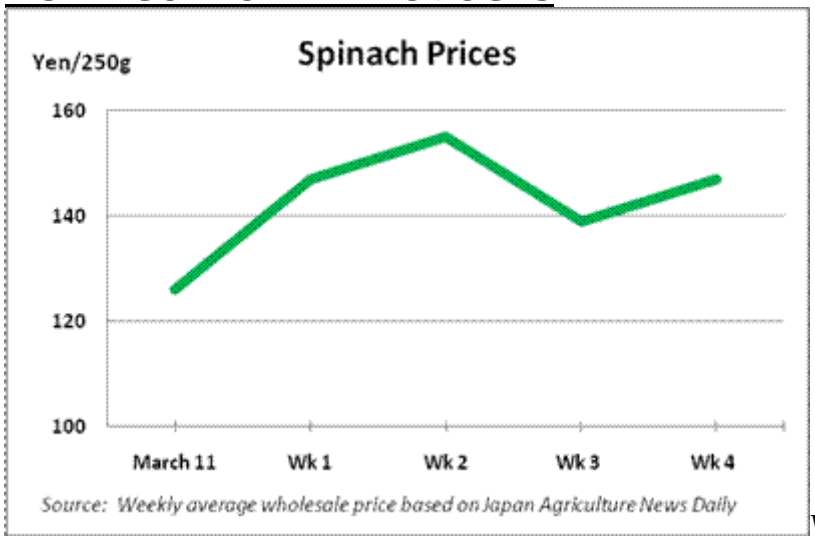
One of countermeasures against contamination is the use of activated charcoal in water filtration plants. For the production of very clean water for specific needs, the application of reverse osmosis membranes and/or ion exchange resin will effectively reduce radioactive contamination. Such technology is well known in Japan, though cost prohibitive for large scale city tap water supplies.

Even after the release of radioactive materials is stopped, some radioactive nuclides such as cesium will remain in the environment for a significant period of time (the half life of radioactive cesium is 30 years). Therefore there is a need to consider mid- and long-term effects of radioactive materials in agricultural products. The factors that need to be considered include, but are not limited to: the type and level of radioactive nuclides; type of environment such as soil property; crops being planted; style of cultivation and so on. For instance, soil characteristics of acidity and cation exchange capacity (CEC)

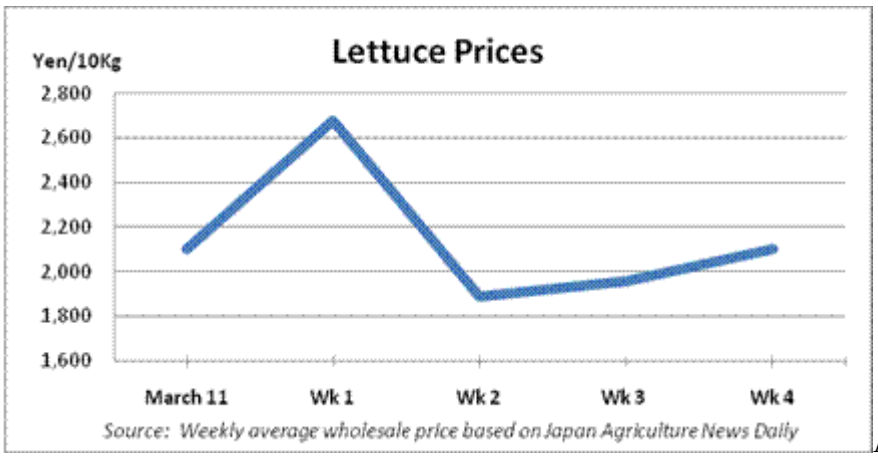
will affect the degree of cesium being held in the surface of soil particles and the absorption by plants. Cesium is a cation of a single positive charge, belonging to Alkali metals, the same as potassium. Potassium is an essential element for plant growth by adjusting cell osmosis. It has been reported that potassium absorption by the plant root would compete with cesium (Shaw and Bell, 1989, Journal of Environmental Radioactivity, 10(3): 213-231). Therefore, the practice of fertilizer application may affect the absorption of cesium by plants. Depending on the level of contamination, artificial removal of radioactive nuclides would be necessary for agricultural production suitable for the market. Examples of possible methods would include soil dressing, removal/exchange of surface soil, and/or phytoremdiation. Either way, the waste handling from cleaning will be a serious problem If the agricultural sector demands extensive field decontamination, it will produce significant amounts of waste and residue containing radioactive materials, regardless of how the cleaning is conducted. The handling of the waste as such will require extensive financial and physical resources.

In addition to the issue of radioactive nuclides transferring from the environment to crops, we also have to consider the transfer of radioactive nuclides from environment via plankton to fish and other various food chains. Bioaccumulation will vary significantly depending on the path of the food chain. Therefore, target specific (i.e., food to be consumed) research and simulation will be necessary. For instance, the experiment of stable cesium-133 accumulation in aquatic organisms indicated that the peak of cesium concentration was within 14 days following the introduction of cesium in plankton, and after 170 days in black bass, *Micropterus salmoides* (Pinder et al., 2011, Journal of Environmental Radioactivity, 102 (2): 283-193). Furthermore, regarding fish and seafood, different ocean currents at various depths of the ocean need to be considered. Deeper sea water would be affected differently by thermohaline circulation than would surface current.

HORTICULTURAL PRODUCTS

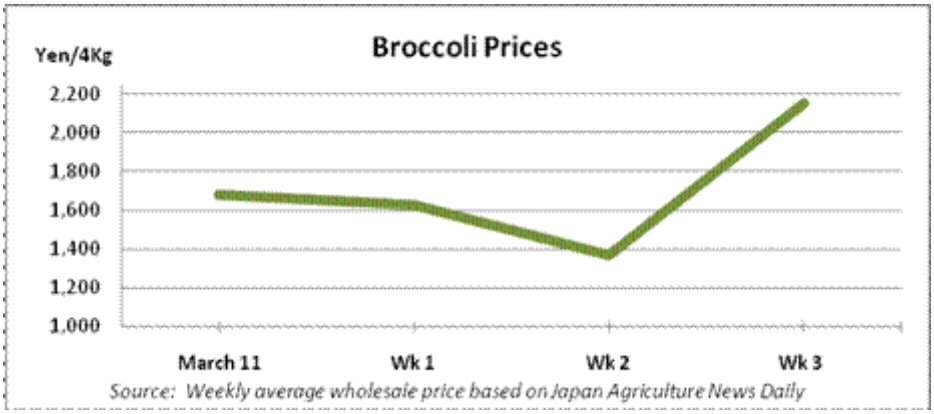


Vegetables. During the first week of April, traders reported that consumer concerns over the food safety of vegetables from Ibaraki and Fukushima may have started to fade. Demand for **spinach**, for example, may be signaling its first signs of recovery. As spinach from the Gunma and the Ibaraki prefectures remain under a government ban, spinach supplies are still low. Hence, spinach wholesale prices rose marginally from the previous week.



As the weather gets warmer demand for **lettuce** is showing a slight increase. Since April 1, prices for both Ibaraki lettuce and lettuce from other local suppliers increased about 10 percent. However, Ibaraki lettuce is still trading at noticeably lower prices than lettuce from suppliers in western Japan. This is no longer only in the Tokyo wholesale market but also in the Kansai region.

Broccoli supplies remain low this week as suppliers continue their transition from winter to spring varieties. Lower supplies and higher demand for non-leafy vegetables are pressuring broccoli prices upward for a second week. Given the strong demand, traders expect prices to remain high. Nonetheless, they anticipate that prices will normalize once the supply transition to spring varieties is complete.



Similar to spinach**, parsley** shipments from the Ibaraki prefecture remain banned following the government announcement on March 23. On April 4, MHLW announced the ban of parsley from Chiba (Asahi City only). Since parsley is mainly used as a garnish in Japan, trade volumes are relatively small compared to other vegetables. Immediately following the earthquake, prices on parsley dropped significantly but appear to be recovering since March 29 but at lower levels. According to traders, as more predictable train schedules and rolling blackouts slowly bring Tokyo's restaurant hours back to normal, demand for parsley has shown a marginal increase. As Shizuoka (central Japan – west of Tokyo) is the major supplier of parsley to the Tokyo area, supply has been steady. Yet, initial food safety concerns concerning leafy greens from the affected area have taken a toll on overall parsley prices.

On April 3, Japan's Ministry of Health Labor and Welfare (MHLW) announced the detection of radioactive substances above the legal limits in **shitake mushrooms** from Iwaki city (Fukushima Prefecture). The announcement led the prefectural government to ask farmers to voluntarily refrain from shipping mushrooms from Iwaki. Consistent with MHLW's new procedures announced on April 4, (see toxicity section) MHLW will continue to monitor this product but no official ban has been announced as of today. Fukushima's production of shitake mushrooms is very small compared to nation's production. Usually Fukushima supplies about 3 percent of total shitake mushrooms to the Tokyo area but since the earthquake trading volumes have dropped to less than 1 percent. After the detection announcements, prices for Fukushima shitake mushrooms dropped from 189 to 179 yen per 100g. The Iwate prefecture is the major supplier of shitake mushrooms to the Tokyo Wholesale market. While Iwate was heavily affected by the tsunami, radiation concerns have not affected the prefecture and hence prices for their shitake mushrooms remain unchanged at 210 yen per 100g.
Fruits. Prices for **strawberries** from the Tochigi prefecture continue to decline. While sales have slowed, this movement in prices is consistent with last year's trend as the strawberry season ends at the end of April. Similarly, prices on strawberries from other domestic suppliers have also declined.

WHOLESALE, RETAIL AND DISTRIBUTION

Now three weeks since the quake hit, Japanese consumers are beginning to return to normal consumption patterns. During the crisis consumer behaviors have alternated between hoarding foods and avoiding purchases. Supply shortages in the Tokyo metropolitan region have resulted in conservative consumption by. Now, consumers are resuming purchases, which they see as doing their part to help revive the economy.
Consumers are coming back not only to everyday-shopping but also going to movie theaters, pub dining/restaurants and golf driving ranges. These facilities have been almost empty since the event. TOHO Cinema Company, a major theater complex, resumed business in Kanto on March 19 with much smaller audiences than before the quake but by the last week of March, the level of attendance was 1.3 times greater than before the great earthquake. Dynack, a pub-dining chain with 270 outlets in Tokyo and Osaka, lost 30 % of its customers right after the quake but as of the last week of March reports just 10 % fewer customers.
The retail industry has tried to encourage consumption to counteract consumers' hesitancy to make what they deem unnecessary purchases following the disaster. A new large-scale shopping mall with two Tokyu supermarkets and 160 shops, Futako-tamagawa High Rise Shopping Center, was opened in Setagaya-district, south-west of Tokyo metropolitan, on March 19. The shopping mall has had twice as many customers as they expected. Hankyu Oi Food Shop, an H2O group retailer, was newly opened in front of JR Oi station, a 15 minute train ride southbound from Tokyo station, on March 16. A sure sign of acceptance by consumers in the region is the long cue of customers in front of the shop and good sales results.
The retailers in Tohoku region are accelerating resumption of operations. York-Benimaru (YB), a Seven & i group supermarket chain with 170 outlets in the Tohoku region, had to close 97 outlets on

March 13, two days after the quake. The company lost 23 employees and the family members of 61 employees to the disaster. However, the company has resumed operations in the last three weeks and has re-opened a total of 160 outlets as of April 1. The YB sales were restored to a 90 % of the company prospect which once slackened to one thirds of it after the quake. AEON also rehabilitated and resumed business at 140 out of a total of 170 outlets (80 % of their stores). AEON could only open 27 outlets in the region in the days following the quake. As of April 4, Seiyu has resumed regular sales at 13 outlets in the region out of a total of 24 outlets.

In response to consumer sentiment and the scheduled blackouts, retailers and restaurants in Tokyo are reducing energy consumption by 30 to 40 % by turning off lights and other electric devices. The Japan Chain Store Association (JCA) has created posters asking consumers to be patient with the energy savings operations being conducted at the stores.

Kansai Retail

Retailers in Kansai are reportedly bracing for the impact of the disasters on consumption and are expecting tough times ahead. Up to now, the negative impact has not been very clear. But the psychological impact comes slowly, as one retailer puts it.

A major retailer based in Kansai says that things have stabilized for now; i.e. supplies of fresh products, alternative sourcing, and sales. But the company is starting to worry about an expected shortage of domestic supplies in May and beyond, when they normally alternate sources from Kansai and begin to buy produce products from Kanto including Ibaraki. (Apparently, Japanese buyers in Kansai are starting to try and secure supplies in northern Japan including Hokkaido.) The company is also worried about price hikes. The price of eggs has risen already. For now, retailers, including this company, are doing their utmost not to raise prices despite higher procurement costs because many people are still suffering, but they say they cannot continue to cut their margins.

A food importer in Osaka relates that customers are beginning to react to news reports that speculate that there will be a shortage in the supply of foods. Consumers are trying to make sure they have enough supplies/inventory in months ahead.

AEON: According to AEON, the largest supermarket chain in Japan, their stores in the Tohoku region are resuming normal operations except for a few stores that were demolished by the March 11 earthquake. AEON has put tremendous effort into finding ways to distribute goods to the stores in the region. Now, their main concern has shifted to the supply of food products available such as fresh produce and seafood due to concern over radiation contamination from the damaged nuclear power

facility in Fukushima. AEON is dealing with a supply situation which changes on a daily basis.

MEDIA

08:22 April 2, 2011 Saturday (Asahi: over 10% of Fukushima rice paddies face difficulties): Asahi reports the agricultural cooperative in Fukushima estimated on Apr 1 that due to damages from the March 11 quake and the subsequent evacuation orders, etc. rice planting at 10,000-15,000 hectares, or over 10%, of paddy in Fukushima will be difficult. The size of the affected paddy fields may increase further due to radiation contamination.

10:22 April 5, 2011 Tuesday (NHK: Fishermen protest TEPCO's nuclear dumping): NHK online reports that Fukushima Fisherman's Association sent a letter of protest to TEPCO Monday evening demanding that the utility immediately halt the release of low level radiation-contaminated water into the sea. The letter reportedly stated that the fishermen are worried that they may never be able to resume fishing due to the discharge.

06:21 April 4, 2011 Monday (Kyodo: Illegal levels of radioactivity in Fukushima mushrooms): Kyodo reports The health ministry said April 3 it detected radioactive substances above legal limits in mushrooms sampled April 1 in Iwaki, Fukushima Prefecture. The mushrooms to contained 3,100 becquerels of radioactive iodine and 890 becquerels of radioactive cesium against the limits of 2,000 becquerels and 500 becquerels. The announcement led the prefectural government to ask farmers to voluntarily refrain from shipping mushrooms in Iwaki.

20:45 April 1, 2011, Friday (NHK online: Very high-level cesium found in soil in Fukushima): NHK online reported that a soil sample collected by MEXT in Namie Town, located some 30 kilometers northwest of the Fukushima nuclear plant, contained cesium 137 almost 2,900 times higher than a normal level. According to the story, the level of cesium 137 was 290,000 Bq./kg.

16:00 April 4, 2011 Monday (Kyodo: Health ministry to keep tentatively set limits for food radiation): The health ministry is expected to maintain consumption limits for radioactive substances in farm and fishery products at the levels tentatively set following radiation leaks at Fukushima Daiichi, in line with recommendations by the ministry's advisory panel. Some local governments have called for lowering the maximum radiation levels allowed in food, saying the tentative levels set by the ministry are too conservative. The panel also recommended the health ministry and government organizations better inform the public about the health concerns by providing easy-to-understand information.

DONATIONS BY U.S. AGRICULTURE

FAS has been in contact with the Ministry of Agriculture, Fisheries, and Forestry and has obtained the below contact number.

If your firm has a supplier network in Japan, and you wish to make a donation, please ask your Japanese partners to email the contacts below. MAFF will work with your firm to match your donation with the expressed needs of an affected community in the Tohoku region.

For the sake of efficiency, and in order to ensure that donations are allocated appropriately, the initial contact should be in writing. If a phone call is needed, please do so during normal Tokyo business hours from 9:30am to 6:00pm. When contacting MAFF, please inform them of the nature and volume of the product you wish to donate, the location of the product, and your delivery capabilities. In some

cases MAFF can arrange for a pickup at your warehouse.

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In addition, the U.S. Agency for International Development manages a site where companies can propose product donations - http://www.cidi.org/commodity-available-registration?view=commodityavailable. This site allows companies to register and list offers of in-kind donations, which then will be matched to stated requests from the Government of Japan.

Naturally, the above options do not preclude you and your Japanese counterparts from distributing assistance through private sector distribution channels.

RECENT DONATIONS BY U.S. AGRICULTURE

Molson Coors Brewing Company - Donation of $50,000 to the Japan relief efforts being coordinated by the International Red Cross.

Hill's Science Diet Pet Foods – Donating several tons of pet food to the affected area.